

AR51

Dow Chemical Canada Inc.

1981 Report





## ABOUT THE COVER...

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A mammoth diamond in the rough?  
Not exactly, but some would say it has even more value to mankind.

On our cover, a crystal of **salt** — sodium chloride. It's a piece from a core sample taken from a hole drilled in 1956 thousands of feet below our plant site at Fort Saskatchewan, Alberta. It was evidence of more than a century's supply of salt, the raw material for Dow's chlor alkali production processes and the original reason we built there.

From salt in brine form, by electrolysis, comes caustic soda and chlorine. Useful in themselves, they are more important as basic chemicals to make everyday things we take for granted.

**Caustic soda** — sodium hydroxide. It's used to make soaps and detergents, dynamite, paints, lubricants, even cosmetics and candy, as well as for treating leather. It "peels" potatoes on a mass production basis, and it washes and sterilizes reusable bottles for beer and pop. Mud is made from it — drilling muds for oil wells; and it's used to coax more production from old oil wells.

The biggest volume use for caustic soda is in the paper industry. There it's used to "cook" wood chips, freeing essential fibers from the wood's lignin so that the finished pulp can be made into paper. It is an extracting agent in the production of phenols from tar — and from that come diverse end products: plywood adhesives, synthetic fibers, pesticides, varnishes, pharmaceuticals, etc. Caustic is used to extract copper, uranium, tungsten and aluminum from ore.

**Chlorine:** one of the basic building blocks of the chemical industry.

If we didn't have chlorine to bleach pulp white we'd be reading newspapers and books printed on brown paper. Clothes and drapes, for example, wouldn't be colorfast. Many synthetic textile fibers would not exist. Farm productivity would decline dramatically because pesticides from chlorine derivatives wouldn't be available.

Picture your life without bleach, steel products, solvents, rocket fuels, many plastics (including vinyl), cleaning compounds, disinfectants, to name just a few. Water supply purification and sewage treatment are other uses, yet these consume less than four percent of chlorine production.

Chlorine and its derivatives combined with the world's biggest volume petrochemical — **ethylene** — yields a range of compounds and end products that boggle the mind. Combining chlor alkali technology with this hydrocarbon especially is the foundation for Dow's unique industry position and wide product range.

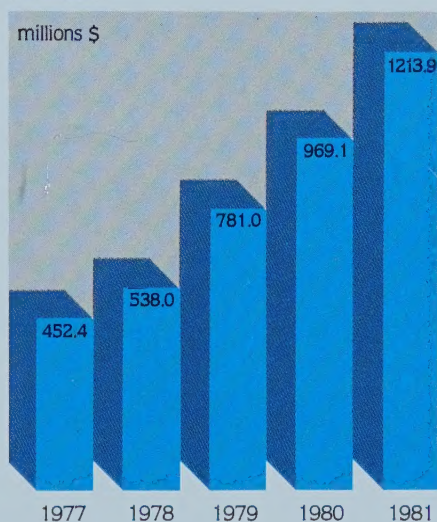
This technological marriage brings us organics and polymers serving a vast array of applications that touch the daily lives of everyone. Anti-knock additives for gasoline, synthetic rubber, plastics with special properties, food wraps, packaging that extends shelf life, engineered foams that outperform rubber in cars and furniture, vinyl for home siding and pipe: these and more all have their roots in chlorine and ethylene.

Both are products of Canada's abundant natural resources — ethylene from natural gas, and underground salt deposits in south western Ontario and Alberta. We are indeed a fortunate nation.

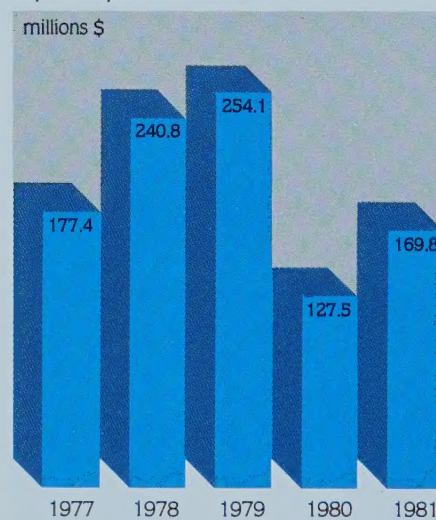


	1981	1980	% Change
	(in millions of Canadian dollars unless otherwise stated)		
<b>Net Sales</b> - Domestic	\$ 969.8	\$ 831.4	+16.7
- Export	244.1	137.7	+77.3
<b>Total</b>	<b>1,213.9</b>	969.1	+25.3
<b>Operating Margin</b>	<b>128.5</b>	101.3	+26.9
<b>Net Income</b>	<b>61.9</b>	31.2	+98.4
<b>Capital Expenditures Plant Properties</b>	<b>169.8</b>	127.5	+33.2
<b>Total Assets</b> (at year-end)	<b>1,667.2</b>	1,527.2	+ 9.2
<b>Employees</b> (actual number at year-end)	<b>4,247</b>	3,982	+ 6.7
<b>Wages, salaries and benefits</b>	<b>137.5</b>	112.3	+22.4

Total Sales



Capital Expenditures for Plants



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Our performance in 1981 was satisfactory considering the difficult year experienced by the Canadian economy and declines in world markets. We showed the highest sales in the company's history with net income increasing significantly from 1980.

Dow Canada made progress in developing its diversified world-competitive base. However, by the fourth quarter of 1981 the turndown in the domestic and foreign economies had resulted in the decline of our markets and erosion of our competitive position. The resulting poor profit position is expected to continue into 1982.

Our 1981 profits showed significant improvement over 1980, mainly because of foreign exchange and one time profits from oil and gas properties. The performance of our regular business was about the same as 1980 for the year as a whole. We exported about 30 percent of our domestically produced tonnage.

Growing export sales of basic chemicals and plastics to Europe, Latin America, Pacific Rim countries and the United States were instrumental in keeping many plants running near capacity.

Ready access to Dow's global sales force in 168 sales offices — the key to our export success — is a vital asset we could not afford except as part of a trans-national company. That, and access to a global technology base, creates jobs and security here as well as spurring a high level of R&D in this country.

Our invested capital in Canada has increased by about four times since 1976 and is now about \$1.7 billion. This commitment to the Canadian chemical industry is based on a long-term competitive position which has not yet produced the additional profits we expected.

Indeed, by the end of 1981 Canadian hydrocarbon cost positions held no advantage over the U.S. Gulf Coast. Underlying this short-term loss of position is the inflexibility of the National Energy Program and the Alberta/Federal Government Energy Pact. We expect our cost position to improve as the world's economy returns to normal demand levels.

As a result of the National Energy Program, Dowell Canada profit performance was down about 77 percent in 1981. But we are well positioned to provide oil well services when this market improves.

In spite of all these problems Dow Canada's people demonstrated their commitment and ability. Their innovation and imagination in meeting the challenges of softening demand, depressed prices, high interest rates and reduced capital spending resulted in 1981 performance which showed an overall improvement from 1980.

The challenges of the last quarter of 1981 continue into 1982. At the time of this writing there is no apparent change in the general recession conditions. Although we are hopeful of an upturn in the second half of 1982, Dow Canada has taken many unusual steps to improve its cash flow position. These include a 50 percent reduction in our capital spending and the delay of our merit increase program for salaried employees. Again, the response to these difficult times from our people has been positive and resourceful.

We believe we are well positioned for the future. We believe our gas-based cost position for basic chemicals and plastics is still fundamentally sound and will serve us well in domestic and export markets.

We continued to increase our commitment to consumer products and services with the parent company's purchase of the Merrell Pharmaceutical ethical drug business in 1981. We also continued development of products and markets for our specialty chemical business.

Of particular satisfaction to me was the outstanding performance in safety and accident prevention, in protecting the health of our employees, in environmental protection, transportation emergency response capability and in our product stewardship practices.

These accomplishments, plus our response to the challenge of the latter part of 1981, gives me great confidence that Dow Canada will effectively cope with what appears to be a difficult 1982.

A handwritten signature in dark ink, reading "Jim Hay".

James M. Hay  
President and Chief  
Executive Officer



## chemical and plastics earnings about the same as 1980

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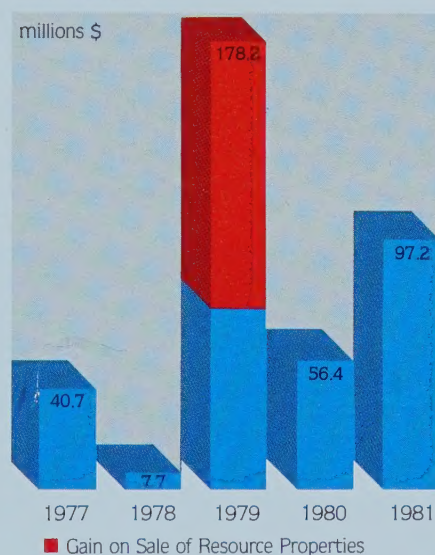
Strong demand in the first part of 1981 enabled total sales to advance to \$1.214 billion from \$969.1 million in 1980, an increase of 25.3 percent. Net income also showed an increase from \$31.2 million in 1980 to \$61.9 million in 1981, up 98.4 percent.

The increase in net income was mainly due to unrealized gains in foreign exchange and one-time profits related to oil and gas. It is not encouraging to note that earnings from the chemicals and plastics portion of the company's

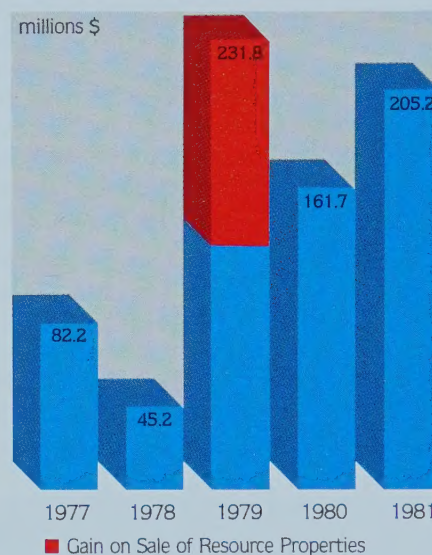
business was about the same as 1980. Domestic sales increased by only 16.7 percent.

Capital spending was \$170 million in 1981. However, these expenditures were severely cut in the last half of the year because of lower demand for products and high interest rates. Working capital increased by \$56.9 million principally due to high accounts receivable related to higher sales and larger inventories. A program to reduce inventories was put into effect.

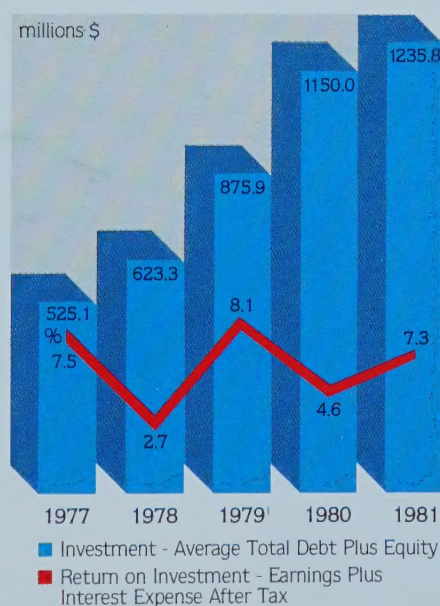
Profit Before Tax



Cash Flow from Operations

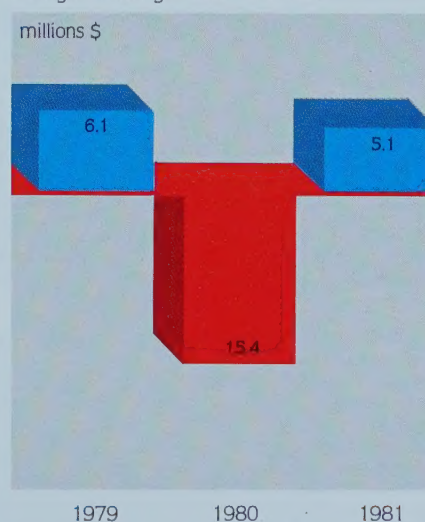


Investment &amp; Return



1979 - Excludes gain of \$65.3 million on sale of resource properties.

Foreign Exchange Gains &amp; Losses



Foreign Exchange Gains and Losses

Most of these gains and losses relate to long term U.S. dollar debt and will not be realized until the debt matures. They are substantially offset when consolidated with the parent company.



# electrochemicals and insulation contribute to sales growth

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The Canadian economy showed moderate growth during the first half of 1981. The second half was not as encouraging as the economy flattened out to a downturn by the fourth quarter. In spite of combined world-wide and Canadian slow economic activity, sales grew to a new record level.

Sales volume continued to outpace the real Canadian gross national product. This was the result of several factors: continued inroads in replacement of imports, strong export sales of basic chemicals and strong demand for caustic soda from the pulp and paper industry.

Sales of Dow insulation materials were very strong. This was mainly due, on the demand side, to an increased interest in energy conservation. From the marketing side we expanded our distribution capabilities significantly and developed an effective promotional program including national television, which helped generate this excellent sales performance.

Dow Canada's chemical and plastic businesses in total accounted for about the same level of profits as last year. Construction insulation materials, and electrochemicals showed the best growth in volume and profits. Export sales accounted for about 30 percent of Dow Canada's chemicals and plastics tonnage production in 1981.



Styrofoam\* insulation saves far northern Saskatchewan hydro dam core from cracks caused by extreme arctic temperatures. Boards pegged to sloped dam face, covered with sandy soil, prevent frost penetration, heaving, break up during thaw. Light area in photo above is Styrofoam application underway.



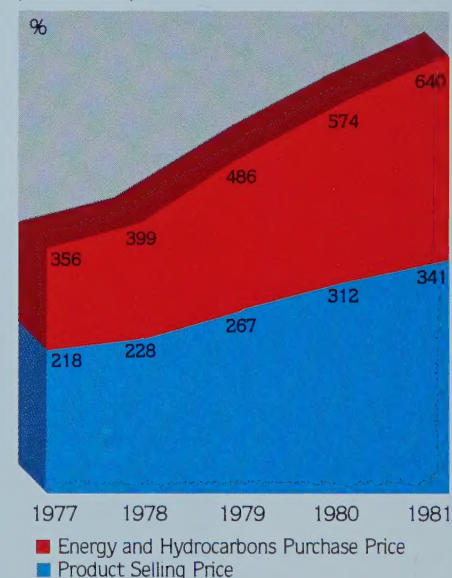
Last year, the success of Tordon\*202C brand herbicide continued with strong sales in the agricultural market. Field testing of a new product for weed control in small grains (Lontrel\* brand herbicide) has also been encouraging. This product is expected to be introduced into the Canadian market in 1982.

Latexes enjoyed a strong penetration into the textile market, especially in the production of carpet backing.

Raw materials and energy costs continued to increase. Global and domestic market pressures had the effect of depressing selling prices so that cost increases more severely affected many products, particularly polyethylenes and vinyl chloride monomer.

Continued low demand in the automotive industry, for example, had a depressing effect on many Dow products. Sales volume of polyols and glycol-based engine coolant were significantly down. In addition, Canada's National Energy Program reduced the profit contribution of Dowell's oil and gas servicing operations by about 77 percent.

Energy Cost vs Selling Price Indices (1971 = 100)



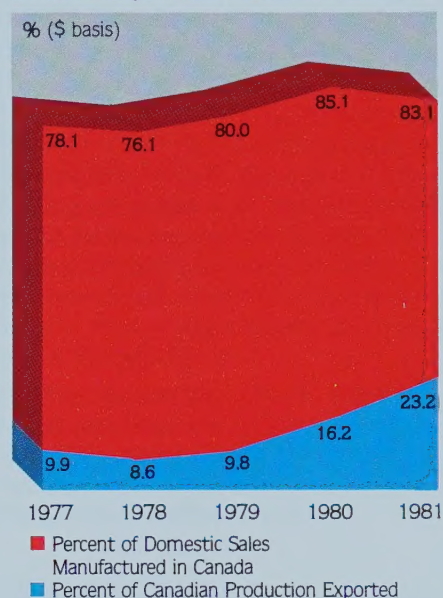
Paved ramps to highway overpasses often break up prematurely due to settling and excessive frost heaving. The high compressive strength, inertness and insulating qualities of Styrofoam\* insulation placed under the ramp instead of earth fill cure the problem, cut road maintenance cost.

\*Trademark of The Dow Chemical Company



In March 1981, The Dow Chemical Company acquired the Merrell business and this doubled our involvement in ethical pharmaceuticals in Canada. Both Dow and Merrell have highly respected positions in their fields. Together, Merrell and Dow ethical products rank about twelfth in Canada out of more than 100 pharmaceutical companies.

Domestic/Export Sales: Canadian Production



Acquisition of the ethical pharmaceuticals part of Richardson-Merrell expanded Dow's line, made the combination 12th largest among over 100 companies. Merrell's research strength in enzyme inhibition and central nervous system products complement Dow's in respiratory and antibiotic products. A major thrust is new product development.

PVC as a preferred material is promoted to designers, business entrepreneurs by Vinyl Council of Canada ads like this one. Council's extensive use of trade shows and technical seminars has racked up impressive success record. Dow supplies PVC precursor, vinyl chloride, to all three Canadian producers of the plastic resin.



More economical and lower energy content than paper, shopping bags of light gauge yet tough Dowlex\* linear low density polyethylene provide unlimited possibilities for printed decoration and advertising messages.



# capacity and output increased from 1980

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Our manufacturing capacity increased eight percent over 1980 and our output was increased by almost 12 percent. Production facilities ran at an average of 87 percent of capacity for the year to supply goods and services to the Canadian market and to maintain our competitive position in international markets.

In 1981 the full manufacturing output of our expanded Fort Saskatchewan site was on-line. Also, engineering progressed during the year on a new Dowlex\* low density polyethylene facility which is scheduled to be on-stream in the mid-'80's.

Styrofoam\* and Roofmate\* brand insulation production in Varennes (Quebec), Weston (Ontario), and Fort Saskatchewan (Alberta) continued to grow. Production records were set in all facilities with final tallies 18.3% above 1980.

In 1981 Dow Canada spent more than \$150 million on plant expansions, plant efficiency improvements and various safety, health and environmental projects.

In Sarnia work began on a new ethyl benzene plant. Major improvements were completed in Styron\* polystyrene, ethylene oxide, vinyl chloride monomer and chlor alkali plants with upgrading underway in many other facilities. The Sarnia site is the largest integrated chemical/plastics manufacturing facility in Canada. It is well situated to compete in world markets.

In Varennes, a new latex manufacturing facility was successfully brought on-stream during the year.

The continuous upgrading of facilities and technology has allowed Dow Canada to decrease unit energy consumption and increase yields. In 1981 our energy consumption was reduced 8.3 percent over 1980. This gives the company a total decrease in energy consumption of 35.4 percent since 1972.



Energy in one form or another is a major raw material in the production of chemicals and plastics, so for many years Dow has made "a war on Btu's" the focus of in-plant energy conservation programs. Constant process improvements made it possible to reduce energy consumption by 35.4 percent since 1972, significantly better than the chemical industry average improvement.

Far eastern and U.S. markets for ethylene dichloride, caustic soda and ethylene glycol are served by chemical tanker vessels, shown loading at Dow Canada's modern Distribution Center at Vancouver. Products are made at company's Fort Saskatchewan plants. Export tonnage through the Center set a record in '81.



During the year, Dow Canada started the project of designing, building and starting up a second ethane cracker of 1.5 billion pounds-per-year capacity under contract for Alberta Gas Ethylene Company Ltd. Dow Canada has agreements to take ethylene from AGE's new facility. The Engineering and Construction Services support group in Toronto is involved in this project. It currently has a staff of 265 including project managers, engineers, designers, draftsmen and support personnel.

One of the Government's aims has been for companies to buy from Canadian sources. This is consistent with Dow Canada's philosophy. While we buy competitively, Dow has a company-wide policy to purchase goods and services from domestic suppliers whenever possible. This practice has resulted in about \$600 million going to Canadian business in 1981.

### Safety record remains good despite major mishap

The Dow Canada safety program is structured on an Operations Practices Package consisting of 55 minimum requirements which blend safety, health, environment and loss prevention into an integrated program. Each plant location defines its respective minimum requirements for line-oriented training, communications and audit cycles. Site Safety Councils manage those two-way safety communications which are vital for the total people commitment necessary in our safety effort.

During the year Dow Canada shared its Minimum Requirement Program with other industries by presenting two one-day workshop seminars sponsored by Ontario's Industrial Accident Prevention Association.



Dow's fully equipped transportation emergency response trailer (above) and specially trained teams of experts are on 24-hour standby ready to rush to the scene of an accident involving Dow's products. First of its kind in the Canadian chemical industry, this rig is based in Sarnia. Another unit is nearing completion and will be based at Dow's Fort Saskatchewan plant. At left is a Dow Sarnia emergency response team (L to R: Bob Beavers, Robbie Robichaud, Stu Greenwood, Dave Bourque, Al McDowell, Dave Tough).



In May of 1981, there was an explosion in the laboratory of the vinyl chloride plant at Fort Saskatchewan. The plant was not significantly damaged but five people were injured in the mishap. All have recovered and returned to work. Our people's response in treating the injured and in returning the plant to full production in 30 days was a major achievement.

Even with this unfortunate incident, Dow Canada had one-fifth the injury frequency of all industries reporting to the National Safety Council. Dow's total lost time and restricted work incidence was down 20 percent compared to 1980.

#### **Product stewardship responsibility continues**

Product stewardship is the proper management, handling and application of Dow Canada's products. It is based on a concept of total concern for all who handle and use our products. The program involves environmental control, industrial hygiene, medicine, toxicology, process engineering and control, research and development, distribution, packaging, marketing, sales, manufacturing and management.

In 1981 many product stewardship audits were conducted at customers' plants, especially where chlorine and caustic were used.

Product Distribution and Planning conducted a very active program of auditing the practices of warehouses, formulation plants and bulk terminals handling Dow products.

In addition, training programs were conducted for marine personnel. This aspect is particularly important as Dow Canada's participation in world markets increases.

In the industrial hygiene area there was increased emphasis on training personnel at all Dow Canada sites. As part of a continuing program, personnel were instructed on methods of avoiding over-exposure. Engineering controls guarding against employee over-exposures were extended and improved.



Healthful working conditions are of prime importance in Dow. These key members of the company's Health Team take their jobs very seriously. Dozens of others are part of the same Canada-wide Team. Employees' blood samples are taken at regular intervals and analyzed on this automatic machine, left background, part of an extensive health surveillance program that includes many more tests. Employees can have results provided to their family physician. (L to R: Dr. John Lanham, medical director; Dr. Bill Chen, toxicologist; Joe Connop, lab technician; Dick Olson, industrial hygiene manager; Dr. Dan MacDougall, director of environmental sciences.)



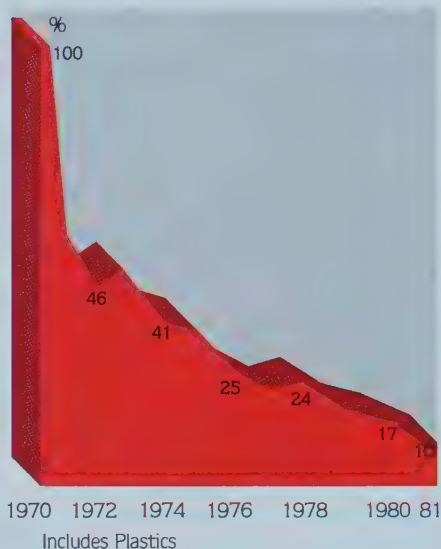
### Environment continues to be major concern

By focusing on eliminating pollution at its source, Dow Canada has made pollution abatement part of everyone's job. In the Sarnia Division, a strong environmental commitment by front-line supervision, with effective technical support from Environmental Control, reduced organic water contaminants by 35 percent over 1980, continuing a consistent 11-year downward trend. Organics and plastics production increased 4 percent over the previous year.

A new \$740,000 biological oxidation system was added in 1981 to the process water treatment facility at the Ladner, B.C. phenol plant. The new process improves reliability, reduces boiler corrosion, eliminates the possibility of air pollution and saves fuel costs.

The year 1981 saw the completion of an extensive well system for monitoring ground water at the Fort Saskatchewan site. A contingency plan calls for the use of these wells to intercept any contaminants. The present monitoring system far exceeds the licence requirements of the Alberta Department of the Environment.

Organics in Wastewater (1970 = 100)



Storage tanks at company's West Coast Distribution Center are each surrounded by concrete dikes to contain total contents should major leak occur. Important because of location on Vancouver's Burrard Inlet and close to built up area. More than 40 other safety features are built in, including nitrogen in air space inside tanks of flammable material to prevent accidental ignition.



Dow's LaSalle Road landfill site in Moore Township near Sarnia won the 1981 St. Clair Region Conservation Authority Conservation Award which recognizes outstanding effort for the protection of natural resources. The site "has been mistaken for picnic grounds. One would hardly believe it is used for treatment and disposal of industrial waste," Ald. Marcella Brown said in making the award. Carefully designed employing the latest technology and monitored, the site includes a protective habitat for wild ducks, tree plantings, runoff water treatment facilities, and a vintage barn declared an historical structure. (L to R: Claire Jardine, Glen Moyer, Cathy Clark, Ken Henry.)



## western oil and gas shows strong growth

Maligne Resources Limited, Calgary, a wholly owned subsidiary of Dow Canada, continued the growth experienced since its incorporation in 1976.

Maligne's oil and gas assets are held in the MT Partnership, a 50/50 partnership with TCPL Resources which is a subsidiary of Trans Canada Pipelines Limited. Maligne acts as manager of the MT Partnership. It also acts as administrator on behalf of Campbell Red Lake Mines Limited and Sigma Mines (Quebec) Limited in their joint venture with Dome Petroleum Limited.

The staff has grown from 6 people in 1976 to 68 people at the end of 1981, or 50 percent per year. In the same period sales have grown 82 percent per year.

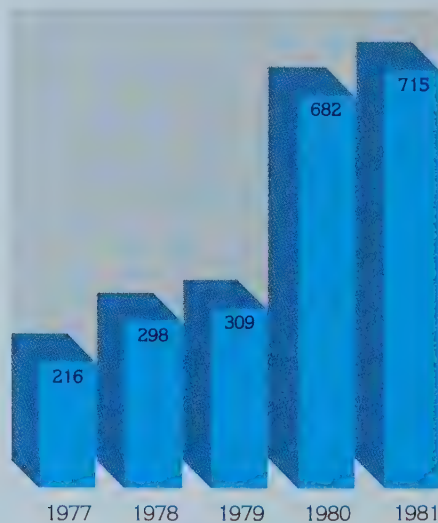
Maligne's share of the MT Partnership reserves of oil and gas, combined with Dow's share of Wabiskaw, a company jointly owned with Dome Petroleum, has grown from 533 thousand bbls.

of oil at the end of 1976 to 36.8 million bbls. at the end of 1981. Gas reserves have grown from 168 Bcf. at the end of 1976 to 494 Bcf. at the end of 1981.

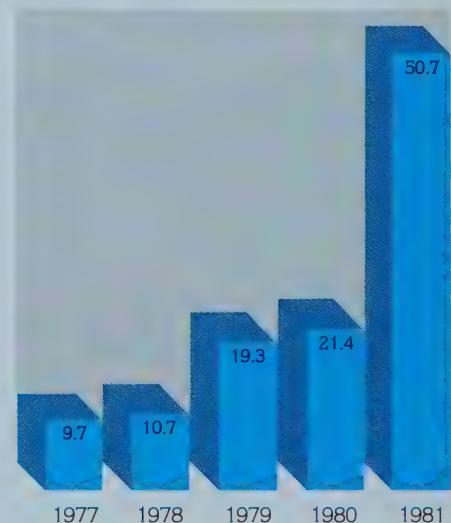
Maligne, through its association with Dome Petroleum, continued active exploration and development throughout western Canada, particularly in the Deep Basin area of north west Alberta and in the Caroline area northwest of Calgary. In total, Maligne participated in the drilling of 1,049 wells in 1981. Of these, 269 were exploratory with 75 percent successful oil and gas wells, and 780 were development with an 85 percent success ratio.

In November 1981 Maligne agreed in principle to acquire a 12½ percent interest in the western Canadian oil and gas properties Dome Petroleum Limited was acquiring from Hudson's Bay Oil & Gas. This will add approximately 30 million bbls. of oil reserves and 500 Bcf. of gas reserves.

Reserves (Gas Equivalent Bcf)



Production (Gas Equivalent Mcf/Day)



## eastern oil and gas a modest but successful program

Dow Canada has carried out a modest but very successful exploration program in south western Ontario over the past six years. On average, six exploratory wells plus one development well have been drilled each year. Dow Canada currently has 30,000 acres under lease in Lambton and Kent Counties in south-western Ontario.

Two natural gas pinnacle reefs have been discovered in Lambton County, one in 1977 and one in 1981. Both reefs are within 10

pipeline-miles of Dow's Samia Division. The first reef was put in production early in 1978 and has been a reliable producer since that time. The second reef is scheduled to go on stream before the mid-1980's. An active extension of this program is planned.

Dow has a major interest in the storage rights for the 1977 reef and holds all of the rights for the more recently discovered reef. These storage capabilities are expected to have an excellent future commercial value for natural gas storage.



### market share increase but profits down

Dowell of Canada has doubled its share of cementing and stimulation services to companies operating in the high Arctic and off the east coast of Canada. These areas are important to the country's energy self-sufficiency. However, the slowdown of onshore rig activity in western Canada, caused by the National Energy Program, reduced profitability on Dowell's operations by about 77 percent in 1981.

During the year Dowell continued to develop new systems for enhanced oil recovery from old wells. The injection of carbon dioxide to energize depleted formation pressures and to reduce

viscosity of heavy oil proved successful in several areas. New stimulation techniques helped keep Dowell in the forefront too. The use of gelled alcohol in formations with sensitivity to conventional treating fluids proved highly successful in a number of areas.

Dowell opened a new field facility at Whitecourt, Alberta and another is nearing completion at Lloydminster. The new facilities will greatly improve working conditions for employees and will also help in the company's preventive maintenance programs.

One of a bank of control panels on custom-built heavy vehicles used by Dowell at every job. As many as a dozen of the bright orange vehicles, some worth more than \$100 thousand, may be needed at a well site. Most are radio-telephone equipped because it's a service business requiring tight scheduling.



Dowell crews, trained professionals in their field, employ sophisticated technology, high pressure equipment and specialized chemicals to coax greater flow rates from oil and gas wells no matter where they are. A new Dowell Research Center, opened in '82, will provide technical services designed expressly for the Canadian scene.



Dowell provides oil and gas well services on land and far out at sea! Its cementing and stimulating equipment and supplies are "barged" to offshore rigs off the Canadian east coast, above, and in high Arctic waters to increase the production of vital energy resources.



## two new labs completed in Canada

Growth in research and development activity continued in 1981. Capital investment in new facilities combined with operating expenditures totalled \$16.5 million during the year. A new process research laboratory at Sarnia, Ontario and a new product development laboratory at Varennes, Quebec were completed and occupied.

New semi-commercial equipment was acquired by our product development laboratories to develop improved polyols for urethane foam molding, new Styron\* brand polystyrene resins and high density polyethylene injection molding resins.

Energy conservation research was undertaken to expand commercial opportunities for Styrofoam\* brand insulation. These included performance evaluations for special underground applications, the development of a new lightweight insulated roof membrane system, and comparative studies of heat losses experienced with various flat roof designs.

New aqueous-based carpet and paper coating latexes having a higher copolymer content were designed and successfully introduced to the

market, thereby reducing the energy load required to cure them when used in these applications.

Through the Dow Petroleum Recovery Center in Edmonton, technical specialists worked with ten oil companies during the year to evaluate 15 sites in western Canada for tertiary oil recovery using alkaline flooding techniques. By year end approvals to conduct three such floods had been secured from the Alberta government.

A major pilot project aimed at improving the energy efficiency of Dow Canada's vinyl chloride production process came on stream late in the year. At our Sarnia chlor alkali manufacturing facilities, improvement in caustic soda evaporation operations yielded significant savings as a result of using optimization studies by the Research and Development section.

A solar energy pilot unit was operated to assess the merits of this source for the heating of caustic soda facilities at remote sites in cold weather.



Peter Kann, a chemist in analytical R&D, operates a capillary gas chromatograph capable of detecting compounds in the parts per billion range.







# Five Year Summary

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	1981	1980	1979	1978	1977
(in millions of dollars unless otherwise stated)					
<b>Balance Sheet</b>					
Working Capital	\$ 249.3	\$ 192.4	\$ 60.4	\$ 38.7	\$ 101.7
Net Property	903.3	842.0	812.2	688.8	466.5
Other Assets	286.7	271.7	275.0	36.7	28.4
Investment	\$ 1439.3	\$ 1306.1	\$ 1147.6	\$ 764.2	\$ 596.6
<b>Income Statement</b>					
Sales	\$ 1213.9	\$ 969.1	\$ 781.0	\$ 538.0	\$ 452.4
Operating Income	128.5	101.3	88.8	49.2	60.9
Profit Before Tax	97.2	56.4	178.2*	7.7	40.7
*Includes gain on sale of \$104.8 million on resource properties					
<b>Other Statistics</b>					
Total Assets	\$ 1667.2	\$ 1527.2	\$ 1401.0	\$ 920.4	\$ 679.6
Capital Expenditures	171.0	130.7	339.5	263.9	191.7
Depreciation and Amortization	107.0	99.0	54.1	37.8	31.2
Research and Development Expense	12.7	10.1	7.9	6.4	5.8
Number of Employees at Year End	4247	3982	3747	3336	3039
Salaries, Wages and Benefits	137.5	112.3	99.4	77.4	65.6



The following financial statements, which are in accordance with generally accepted Canadian accounting principles, cover the operations of Dow Chemical Canada Inc. and its wholly owned subsidiaries. The annual report to shareholders of The Dow Chemical Company also provides certain financial data for Canada. While the information is similar to that contained in this report, there are certain differences; for example, The Dow Chemical Company reports in U.S. dollars while we report in Canadian dollars. Also there are various credits and charges passed from one geographic area to another for management purposes which are not reflected in the audited financial statements. The greatest differences between the two reportings is in foreign exchange gains or losses and while these may appear to be substantial in our operations they are mostly unrealized and have a minor impact when consolidated with the parent company (see Note 3).

## Auditors Report

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To the Shareholder of  
**Dow Chemical Canada Inc.:**

We have examined the consolidated balance sheet of Dow Chemical Canada Inc. as at December 31, 1981 and the consolidated statements of income, retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1981 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied, except for the change in the method of stating inventories as described in Note 1 to the Financial Statements, on a basis consistent with that of the preceding year.

*Deloitte Haskins & Sells*

Chartered Accountants

Toronto, Canada  
January 29, 1982;  
as to Note 13, March 10, 1982



# Summary of Significant Accounting Policies

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## Consolidation

The accompanying consolidated statements include the accounts of the company and its undernoted subsidiaries, all of which are wholly-owned:

Maligne Resources Limited  
Dow Pipeline Ltd.  
Dow Chemical Terminals Canada Inc.

## Translation of foreign currency

U.S. dollars are translated into Canadian dollars as follows: amounts receivable and payable in U.S. dollars at the year-end rate of exchange; revenues and expenses at the rate prevailing at the date of the transactions. Gains and losses on currency translations are included in income, including provision for any gains or losses on forward exchange contracts at the year end.

## Inventories

Inventories are stated at the lower of cost and market. Cost is determined on the last-in, first-out basis.

Market value is determined as follows:

Materials and supplies — replacement cost; Work in process and finished goods — net realizable value.

## Investment in associated companies

The company follows the equity method of accounting for its 20% equity interest in Lawrason's Chemicals Ltd. and its 50% equity interest in Wabiskaw Explorations Ltd. as well as its 50% interest in MT Partnership, an unincorporated joint venture.

## Property and depreciation

Land, buildings and equipment are at cost, which for property under capital lease agreements is the discounted value of lease obligations. Depreciation is based on the estimated service lives of depreciable assets and is provided for using the declining-balance method. The company follows the policy of capitalizing interest cost as part of the cost of constructing capital assets.

## Deferred charges and other assets

Deferred charges and other assets are recorded at cost less accumulated amortization.

## Income taxes

The company computes and records income taxes currently payable based on its determination of taxable income which differs from pre-tax accounting income. The differences, consisting principally of depreciation and the provision for LIFO inventory reserve, arise from recording in pre-tax accounting income transactions which enter into the determination of taxable income in another period. The tax effect of these timing differences is recognized currently by adjustment to the provision for taxes.

## Retirement plans

The company has plans which provide retirement benefits for substantially all full-time employees. The policy is to accrue and fund pension costs as computed by an actuary.



# Consolidated Statement of Income

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Year ended December 31	1981	1980 (restated)
(in thousands)		
<b>Net Sales</b> (including sales to affiliated companies - 1981 - \$207,486; 1980 - \$135,699)	<b>\$1,213,869</b>	<b>\$ 969,120</b>
<b>Income from Operations</b>	<b>\$ 128,536</b>	<b>\$ 101,309</b>
<b>Interest and Miscellaneous Income</b> (Note 3)	<b>23,650</b>	<b>15,605</b>
<b>Equity in Net Income of Associated Companies</b>	<b>2,650</b>	<b>669</b>
	<b>154,836</b>	<b>117,583</b>
<b>Interest and Other Expenses</b> (Note 3)	<b>57,627</b>	<b>61,220</b>
<b>Income before Provision for Taxes on Income</b>	<b>97,209</b>	<b>56,363</b>
<b>Provision for Taxes on Income</b> (Note 4)	<b>35,355</b>	<b>25,173</b>
<b>Net Income</b>	<b>\$ 61,854</b>	<b>\$ 31,190</b>

# Consolidated Statement of Retained Earnings

Year ended December 31	1981	1980
(in thousands)		
<b>Balance, Beginning of Year</b>		
As previously reported	<b>\$ 328,640</b>	<b>\$ 300,732</b>
Adjustment of prior years' royalty expense net of income taxes (Note 12)	<b>4,340</b>	<b>1,058</b>
As restated	<b>332,980</b>	<b>301,790</b>
<b>Net Income</b>	<b>61,854</b>	<b>31,190</b>
<b>Balance, End of Year</b>	<b>\$ 394,834</b>	<b>\$ 332,980</b>

See Accounting Principles and Notes to  
the Consolidated Financial Statements



# Consolidated Balance Sheet

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As at December 31

## Assets

	1981	1980 (restated)
(in thousands)		
<b>Current Assets</b>		
Cash	\$ 321	\$ 296
Accounts and notes receivable (including affiliated companies, 1981 - \$20,591; 1980 - \$35,256)	209,461	192,998
Income taxes recoverable	421	1,645
Inventories (Note 1)		
Finished and in process	155,302	126,710
Materials and supplies	98,504	81,073
Deferred income taxes	13,245	10,859
Total current assets	477,254	413,581
<b>Investments and Non-Current Receivables</b>	35,775	18,181
<b>Investments in Associated Companies</b>	225,425	223,073
<b>Property (Note 2)</b>	1,346,009	1,191,441
Less accumulated depreciation	442,695	349,476
Net property	903,314	841,965
<b>Deferred Charges and Other Assets</b>	25,455	30,429
Total	\$ 1,667,223	\$ 1,527,229

Approved by the Board:

J.M. Hay, director  
E.L. Weldon, director

See Accounting Principles and Notes to  
the Consolidated Financial Statements



## Liabilities and Shareholder's Equity

	1981	1980 (restated)
(in thousands)		
<b>Current Liabilities</b>		
Notes payable — affiliated companies	\$ 3,950	\$ 17,920
Accounts payable and accrued liabilities (including affiliated companies, 1981 — \$78,579; 1980 — \$72,985)	224,041	203,275
Total current liabilities	227,991	221,195
<b>Long-Term Debt (Note 3)</b>	758,521	725,942
<b>Deferred Income Taxes</b>	206,339	167,574
Total liabilities	1,192,851	1,114,711
<b>Shareholder's Equity</b>		
Share capital		
Authorized		
An unlimited number of preferred shares redeemable at \$100 each with \$6 non-cumulative dividend, and an unlimited number of common shares, all without par value.		
Issued and outstanding		
250,000 preferred shares	25,000	25,000
509,930 common shares	54,538	54,538
Total share capital	79,538	79,538
<b>Retained Earnings</b>	394,834	332,980
Total shareholder's equity	474,372	412,518
Total	\$ 1,667,223	\$ 1,527,229



# Consolidated Statement of Changes in Financial Position

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Year ended December 31	1981	1980 (restated)
(in thousands)		
<b>Sources of Working Capital</b>		
Operations:		
Net income	\$ 61,854	\$ 31,190
Items not affecting working capital:		
Equity in net income of associated companies	(2,650)	(669)
Provisions for abandonment of oil and gas interests	200	434
Depreciation	107,049	98,990
Deferred income taxes	38,765	31,713
Provided from operations	205,218	161,658
Decrease in investments in associated companies	298	1,525
Decrease in deferred charges and other assets	4,974	—
Net increase in long-term debt	32,579	97,520
Disposal of property	2,354	1,465
Decrease in investments and non-current receivables	—	9,045
Total working capital provided	245,423	271,213
<b>Uses of Working Capital</b>		
Additions to property	170,952	130,674
Increase in investments and non-current receivables	17,594	—
Increase in deferred charges and other assets	—	6,597
Total working capital applied	188,546	137,271
<b>Increase in Working Capital</b>	\$ 56,877	\$ 133,942
<b>Increase (Decrease) in Current Assets</b>		
Cash	\$ 25	\$ 31
Accounts and notes receivable	16,463	32,527
Income taxes recoverable	(1,224)	1,645
Inventories	46,023	64,860
Deferred income taxes	2,386	2,665
<b>Decrease (Increase) in Current Liabilities</b>		
Notes payable - affiliated companies	13,970	2,171
Accounts payable and accrued liabilities	(20,766)	25,151
Income taxes payable	—	4,892
<b>Increase in Working Capital</b>	\$ 56,877	\$ 133,942

See Accounting Principles and Notes to  
the Consolidated Financial Statements



1. **Inventories:** Beginning in 1974, inventories have been valued under the last-in, first-out method (LIFO) using inventory pools corresponding to business segments. In 1981 the parent company, The Dow Chemical Company of Midland, Michigan realigned its LIFO inventory pools for financial reporting purposes to correspond to product groups rather than business segments, thereby achieving, in the opinion of management, a better matching of cost and revenue. The change was made effective January 1, 1981. The effect of the change was to increase net income for the year ended December 31, 1981 by \$2.5 million. Proforma amounts for retroactive application or the cumulative effect of this change are not determinable.

If the first-in, first-out method of inventory valuation had been used by the company, inventories would have been \$42.4 million and \$41.4 million higher than reported at December 31, 1981 and 1980 respectively.

2. **Property and Depreciation:** Details of property and accumulated depreciation are as follows:

		1981		1980	
	Depreciation Rate	Cost	Accumulated Depreciation	Cost	Accumulated Depreciation
		(in thousands)			
Land	—	\$ 15,261	\$ —	\$ 11,778	\$ —
Land and waterway improvements	10%	26,642	8,013	24,084	6,072
Buildings	5%	124,545	37,677	106,973	30,493
Machinery and equipment	10%-20%	1,041,123	396,140	963,908	312,302
Construction in progress	—	132,090	—	78,898	—
Other	Varying rates	6,348	865	5,800	609
		\$1,346,009	\$ 442,695	\$1,191,441	\$ 349,476

Depreciation provided in 1981 and 1980 was \$107.1 million and \$99.0 million respectively.

3. **Long-term Debt:** Details of long-term debt are as follows:

	1981		1980	
	U.S. \$	Cdn. \$	U.S. \$	Cdn. \$
(in thousands)				
Series A and B variable rate income debentures due 1983 through 1987 — \$50 million each year		\$ 250,000		\$ 250,000
Notes payable to parent company				
8% due 2008	\$ 140,500	166,619	\$ 140,500	167,855
6% due 2009	\$ 179,800	213,225	\$ 179,800	214,807
11% due 2010	\$ 75,000	88,943	\$ 75,000	89,603
11% due 2011	\$ 24,000	28,462		
Notes payable to affiliated company				
15% repayable \$450 thousand per annum commencing 1986 through 2000, the final balance due December 31, 2000		9,000		
Other		109	802	958
Capitalized lease obligations due in future years		2,163		2,719
	\$ 758,521		\$ 725,942	

The principal repayments of long-term debt exclusive of capitalized lease obligations required in each of the next five years are as follows (in millions): 1982 — \$1.0; 1983 — \$50.1; 1984 — \$50.0; 1985 — \$50.0; 1986 — \$50.0.

Gross interest on long-term debt incurred in 1981 and 1980 was \$65.7 million and \$52.5 million, respectively, of which \$7.8 million was capitalized in 1981 and \$7.2 million was capitalized in 1980.

Income before provision for taxes on income includes unrealized foreign exchange gains (1981) and losses (1980) of \$3.7 million and \$11.1 million respectively that are attributable to long-term debt.



4. **Income taxes:** The provisions for taxes on income in 1981 is lower than the normal statutory rate primarily because of the effect of investment tax credits, manufacturing and processing tax allowance and deductions allowed for tax purposes with respect to 3% inventory allowance and profits generated from "resource" properties.

The provisions for taxes on income consists of:

	1981	1980 (restated)
	(in thousands)	
Current	\$ (1,024)	\$ (1,889)
Deferred	36,379	27,062
	<b>\$ 35,355</b>	<b>\$ 25,173</b>

5. **Contingencies:** Several damage suits relating to alleged product defects are currently outstanding. The company has made provision for its estimated liability with respect to such actions.

In 1979, Maligne Resources Limited, a wholly-owned subsidiary of the company, sold certain oil and gas properties. One of the conditions of sale is that certain areas under active exploration have provision for re-evaluation of purchase prices in 1981 and 1982. However, both parties have agreed that the 1981 re-evaluation will be postponed until 1982.

MT Partnership has pledged an undivided 50% share of its assets on behalf of Maligne Resources Limited. These assets, consisting primarily of oil and gas properties, related equipment and accounts receivable, serve as security for loans of the partnership. As a general partner of MT Partnership, Maligne Resources Limited may be liable for any deficiencies which may arise in meeting the terms of the loans.

During 1980, the company received Federal income tax reassessments for the taxation years 1976 and 1977 which, combined with expected Provincial reassessments, amount to approximately \$3.5 million. The company has filed Notices of Objection to these reassessments. Such reassessments reflect intercompany pricing adjustments proposed by Revenue Canada Taxation. Any additional taxable income resulting from adjustments of this nature in Canada would result in a corresponding reduction in the taxable income of The Dow Chemical Company, the parent company resident in the United States. Adjustments, if any, arising from the settlement of these reassessments are expected to be accounted for as prior period adjustments.

6. **Contractual obligations:** Contractual obligations for the extension of plant and purchase of equipment amounted to approximately \$22.5 million at December 31, 1981.

The company has contracted to sell under forward exchange contracts \$150,000,000 U.S. at rates averaging approximately \$1.1875 Canadian for each \$1.00 U.S.

The company has entered into two 20-year agreements to purchase ethylene. The first, requires the company to purchase substantially all the output of an ethylene plant (Plant #1) while the second requires the company to purchase 40% of the output of a second ethylene plant (Plant #2), upon its completion. The purchase price of the output is determined on a cost-of-service basis which, in addition to covering all operating expenses, provides the owner of the plants (The Alberta Gas Ethylene Company Ltd.) with a specified return on capital. The Alberta Gas Ethylene Company Ltd. has borrowed \$243 million U.S. dollars for the construction of Plant #1 which has been guaranteed as to principal and interest by The Dow Chemical Company, Midland, Michigan.

The company has entered into a 20-year agreement, to purchase oxygen and nitrogen for its Western Division from a facility owned and operated by Union Carbide Canada Limited. The purchase price is determined on a cost-of-service basis.

7. **Classes of business:** In accordance with the requirements of the Canada Business Corporations Act, the following information is reported:

	Sales	
	1981	1980
	(in thousands)	
Industrial chemicals	\$ 775,459	\$ 568,561
Plastics and metals	168,630	157,848
Bioproducts and consumer products	51,457	47,566
Specialty products	141,936	111,705
Dowell	76,387	83,440
	<b>\$ 1,213,869</b>	<b>\$ 969,120</b>



- 8. Leased properties:** Minimum rental commitments under non-cancellable leases, substantially all of which pertain to manufacturing facilities and transportation equipment, are as follows:

	Capital Leases	Operating Leases
	(in thousands)	
1982	\$ 592	\$ 14,032
1983	1,193	14,913
1984	394	14,015
1985	294	13,178
1986	276	12,088
Subsequent years	659	114,472
	3,408	182,698
Less		
Executory costs	260	—
Interest	550	—
	\$ 2,598	\$ 182,698

- 9. Retirement plans:** All the retirement plans administered by the company were fully funded at year end. An actuarial gain of \$9.6 million was recognized in 1981 in calculating the cost of pensions.
- 10. Related party transactions:** Dow Chemical Canada Inc. is a wholly-owned subsidiary of The Dow Chemical Company. Significant transactions with The Dow Chemical Company and its subsidiaries and affiliated companies not disclosed in the accompanying financial statements were as follows:

	1981	1980 (restated)
	(in thousands)	
Balances at end of year — non-current notes receivable	\$ 3,008	\$ 2,968
Transactions during the year		
Purchased goods and services	\$ 219,373	\$ 159,003
Interest expense	\$ 43,394	\$ 34,034
Sundry income and recoveries	\$ 6,987	\$ 2,281

Transactions with those entities accounted for on the equity basis are not significant in relation to the company's overall activities.

- 11. Change in company name:** As of September 1, 1981 the name of the company was changed from Dow Chemical of Canada, Limited to Dow Chemical Canada Inc.
- 12. Prior years' royalty expense:** During the year the company received an adjustment for excess royalty payments paid to The Dow Chemical Company in prior years. As a result of this correction retained earnings at December 31, 1980 increased from that originally reported by \$4.3 million net of applicable income taxes. Of this amount \$3.2 million is applicable to 1980 and has been credited to income of that year; the remaining \$1.1 million is applicable to years prior thereto and has been added to retained earnings at January 1, 1980.
- 13. Subsequent event:** Maligne Resources Limited, (Maligne) a wholly-owned subsidiary of the company, has agreed to purchase from Dome Energy Limited a 12½% interest in certain oil and gas properties of Hudson's Bay Oil and Gas Company Limited (HBOG) located in western Canada. Initially Maligne will pay approximately \$220 million in cash and further payments over a five-year period subject to re-evaluation of the total value of the properties based on future prices, royalties and taxes. If current assumptions regarding escalation of energy prices prove true, the additional payments would be in the order of \$240 million. Upon acquisition the properties will be transferred to MT Partnership in which Maligne has a 50% interest.

Funds for the initial purchase amount will be obtained primarily through loans from a group of banks and will be collateralized by existing properties of Maligne and the HBOG properties to be acquired.



**Board of Directors**

Robert T. Boldt

James M. Hay

Thomas F. Kenny

Clifford L. Mort

Robert E. Naegele, group vice president, The Dow Chemical Company, Midland, Michigan

Gerald W. Pearson

Murray N. Trask

E. Leonard Weldon, Q.C.

**Officers and Management**

James M. Hay, president and chief executive officer

Clifford L. Mort, chairman of the board of directors

Murray N. Trask, vice president, Manufacturing

Gerald W. Pearson, vice president, Commercial

Robert T. Boldt, vice president, Operating Services

E. Leonard Weldon, Q.C., vice president and secretary

Thomas F. Kenny, treasurer and assistant secretary

Charles B. Crawford, assistant secretary

Edward T. Wall, controller

L. Malcolm Tod, director, Research and Development

Donald R. Stephenson, director, Corporate Communications

Gordon C. Redford, manager, Area Employee Relations



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## Corporate Office

Dow Chemical Canada Inc., P.O. Box 1012, Sarnia, Ontario N7T 7K7 Telephone - (519) 339-3131

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## District Sales Offices

999 West Hastings Street - Suite 1560  
Vancouver, British Columbia V6C 2W2  
Telephone - (604) 683-0461

250-6th Avenue South West  
Bow Valley Square 4 - Suite 3101  
Calgary, Alberta T2P 3H7  
Telephone - (403) 267-3500

Construction Materials Sales  
10025 Jasper Avenue - Suite 2412  
Edmonton, Alberta T5J 1S6  
Telephone - (403) 428-0442/3/4

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Telephone - (204) 943-7481

199 North Leonard Street  
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Telephone - (306) 949-7455

201 - 2366 Avenue C. North  
Saskatoon, Saskatchewan S7L 5X5  
Telephone - (306) 244-6484

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Telephone - (416) 675-7374

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Telephone - (514) 931-7112

Flexible Packaging  
9675 Cote de Liesse Road - Suite 1041  
Dorval, Quebec H9P 1A3  
Telephone - (514) 636-6552

Cogswell Tower, Scotia Square  
7th Floor - Suite 702  
Halifax, Nova Scotia B3J 2A8  
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P.O. Box 5728  
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## Government Affairs Offices

Western Region - Government Affairs  
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Edmonton, Alberta T5J 1S6  
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Ontario Government Affairs  
1099 Bay Street - Suite 202  
Toronto, Ontario M5S 2W8  
Telephone - (416) 675-7374

Federal Government Affairs  
275 Slater Street  
Suite 801  
Ottawa, Ontario K1P 5H9  
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Edmonton Business Office  
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5240 Calgary Trail  
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Telephone - (403) 436-9110

200 Consumers Road  
Suite 900  
Willowdale, Ontario M2J 4R4  
Telephone - (416) 492-3000

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## Plant Locations

DELTA, BRITISH COLUMBIA, P.O. Box 901, Delta, British Columbia V4K 3R9  
FORT SASKATCHEWAN, ALBERTA, Highway 15, Fort Saskatchewan, Alberta, T8L 2P4  
RED DEER, ALBERTA, 5015 - 48th Street, Red Deer, Alberta, T4N 1S9  
SARNIA, ONTARIO, P.O. Box 3030, Sarnia, Ontario, N7T 7M1  
THUNDER BAY, ONTARIO, P.O. Box 820 - Station "F", Thunder Bay, Ontario, P7C 4X7  
VARENNES, QUEBEC, P.O. Box 260, Varennes, Quebec, J0L 2P0  
WESTON, ONTARIO, 122 Arrow Road, Weston, Ontario, M9M 2M2





DOW CHEMICAL CANADA INC.